

# *제 13 장* ***JSTL***

**2020년도 1학기**



## ❖ 액션태그

- 태그 <jsp:useBean ...>, <jsp:include ...>
- 이미 정해진 액션/동작들을 위한 태그

## ❖ 커스텀 태그(Custom Tag)

- JSP에서는 프로그래머가 직접 필요한 태그를 만들어 사용
- XML 태그 형식
  - 시작 태그와 종료 태그가 반드시 존재

몸체(body)가 없는 태그 방식 :

```
<prefix:tagName var1="value" ... />
```

몸체(body)가 있는 태그 방식 :

```
<prefix:tagName var1="value" ... >
```

태그 몸체(tag body)

```
</prefix:tagName>
```



## ❖ 자바 표준 태그 라이브러리

- JSTL: Java Standard Tag Library
- 자바에서 커스텀 태그 기능을 이용하여 활용 빈도가 높은 태그를 개발

분류	세부 영역	접두어 (prefix)	URI
<b>Core</b>	변수 지원	c	<a href="http://java.sun.com/jsp/jstl/core">http://java.sun.com/jsp/jstl/core</a>
	제어 흐름		
	URL 관리		
	출력, 예외처리		
<b>XML</b>	코아	x	<a href="http://java.sun.com/jsp/jstl/xml">http://java.sun.com/jsp/jstl/xml</a>
	흐름 제어		
	변환		
<b>Internationalization</b>	지역화(Locale)	fmt	<a href="http://java.sun.com/jsp/jstl/fmt">http://java.sun.com/jsp/jstl/fmt</a>
	메시지 포맷		
	수와 날짜 포맷		
<b>Database</b>	SQL	sql	<a href="http://java.sun.com/jsp/jstl/sql">http://java.sun.com/jsp/jstl/sql</a>
<b>Functions</b>	집합체 길이	fn	<a href="http://java.sun.com/jsp/jstl/functions">http://java.sun.com/jsp/jstl/functions</a>
	문자열 처리		

# taglib사용시 주의사항(EL 자료 중)

## ❖ 표현언어에서 등록한 태그의 함수를 호출하려면

- 가장 먼저 <taglib> 태그를 이용하여 사용할 태그 접두어와 이용할 함수가 정의되어 있는 TLD 파일을 지정

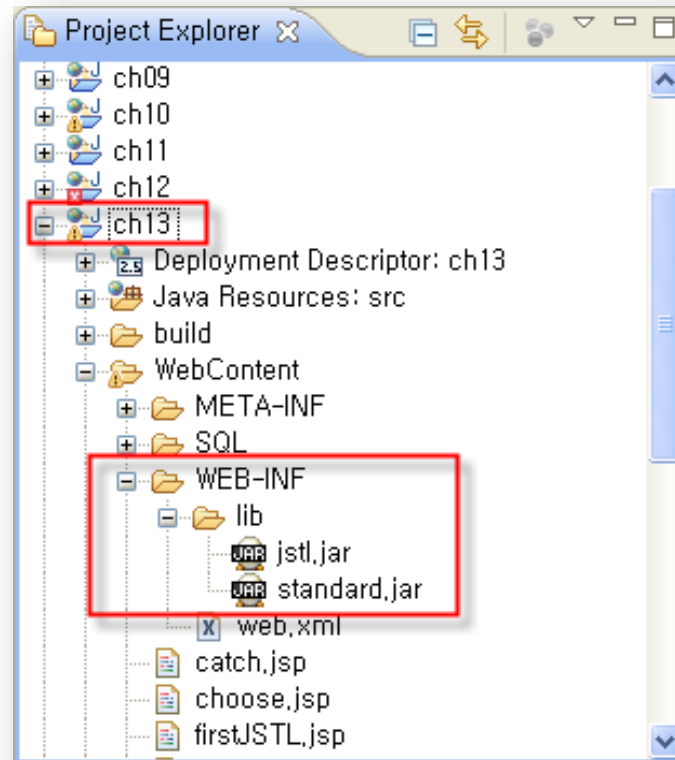
The diagram illustrates the process of using a custom tag library (taglib) in a JSP page. It consists of three main components:

- JSP Page:** The top part shows a JSP snippet: `<%@ taglib prefix="date" uri="/WEB-INF/tld/ELfunction.tld" %>` and `${ date:format(now) }`. The `date` prefix and `format` function are highlighted in yellow. Arrows point from these to the TLD file and the function definition respectively.
- TLD File:** The bottom-left window shows the content of `ELfunction.tld`. It defines a function named `format` with the class `form.ELDateFormat`. The `<name>format</name>` line is highlighted with a red box. An arrow points from this box to the `format` function in the JSP snippet.
- Web Application Structure:** The bottom-right tree view shows the directory structure of a web application. The `WebContent` directory is expanded, showing `META-INF`, `WEB-INF`, `lib`, and `tld` subdirectories. The `ELfunction.tld` file is located within the `tld` directory and is highlighted with a red box. An arrow points from this box to the `uri="/WEB-INF/tld/ELfunction.tld"` part of the JSP snippet.

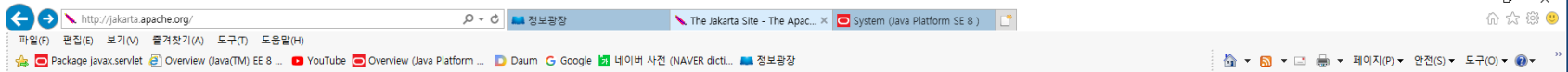


## ❖ JSTL을 위한 2 개의 jar 파일

- [jstl.jar]와 [standard.jar]



# 다운로드 사이트 - jakarta.apache.org



2011/12/21 - Jakarta has been retired.

For more information, please explore the [Attic](#).



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- [HttpComponents](#)
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## Welcome to The Apache Jakarta™ Project

Founded in 1999, the Jakarta Project housed a diverse set of popular open source Java solutions. In 2005, as a part of creating a flatter Apache Software Foundation, Jakarta subprojects began to become full top-level Apache projects. This process has continued to this day, all subprojects have now left the Jakarta project to become top level projects, join other TLPs (Commons), or in some cases been retired.

## News

### Latest Jakarta News

- 21 December 2011 - [Jakarta Retired](#)
- 26 October 2011 - [JMeter becomes a top level project](#)
- 03 October 2011 - [Apache JMeter 2.5.1 Released](#)
- 11 September 2011 - [BSF moves to Apache Commons](#)
- 17 August 2011 - [Apache JMeter 2.5 Released](#)
- 05 August 2011 - [Cactus moves to Apache Attic](#)
- 25 June 2011 - [JCS moves to Apache Commons](#)
- 25 June 2011 - [BCEL moves to Apache Commons](#)
- 17 April 2011 - [Regexp is retired](#)
- 01 September 2010 - [ORO is retired](#)
- 01 September 2010 - [ECS is retired](#)
- 14 July 2010 - [Apache JMeter 2.4 Released](#)
- 24 June 2010 - [Jakarta BSF 3.1 Released](#)
- 09 October 2009 - [Jakarta BSF 3.0 Released](#)
- 04 October 2009 - [Taglibs is retired](#)
- 21 June 2009 - [Apache JMeter 2.3.4 Released](#)
- 24 May 2009 - [Apache JMeter 2.3.3 Released](#)
- 05 April 2009 - [Jakarta BSF 3.0-beta3 Released](#)
- 26 January 2009 - [Apache Cactus 1.8.1 Released](#)
- 14 June 2008 - [Apache JMeter 2.3.2 Released](#)

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- [Agila](#)
- [Cactus](#)
- [ECS](#)
- [java.apache.org](#)
- [ORO](#)
- [Regexp](#)
- [Slide](#)
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<http://jakarta.apache.org/>

# JSTL 라이브러리 다운로드 과정



← → http://attic.apache.org/projects/jakarta-taglibs.html 🔍 정보광장 Jakarta Taglibs - Apache At... System (Java Platform SE 8)

파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)

Package javax.servlet Overview (Java(TM) EE 8 ... YouTube Overview (Java Platform ... Daum Google 네이버 사전 (NAVER dicti... 정보광장

## Jakarta Taglibs

Starting in 2000, Jakarta hosted the Jakarta Taglibs project, a large collection of JSP Tag Libraries. They ranged from simple utility libraries and UI libraries, to Dreamweaver extensions and an implementation of the JSP Standard Tag Library (JSTL) specification.

With the advent of JSTL, the core features of many of the libraries had been standardized and the need for these libraries diminished. As such, much of the Taglibs codebase moved into maintenance mode.

Read-only Resource	Link(s)
Website	n/a
Mailing List Archives	<a href="#">dev</a>
Issue Tracker	<a href="#">Bugzilla</a>
Source Code (Subversion)	<a href="#">svn.apache.org/repos/asf/jakarta/taglibs</a>
Downloads	<a href="#">archive.apache.org/dist/jakarta/taglibs/</a>   <a href="#">KEYS</a>

In 2008 and 2009, the majority of these libraries were deprecated and have now been retired. The remaining work has moved over to the **Tomcat Taglibs** project - namely the following taglibs:

- Standard - The implementations of the various JSTL specifications
- RDC—Reusable-Dialog-Components-Taglib

In 2014 the RDC Taglib was retired from the Tomcat Taglibs project.

Name	JSP version	Obtain
<a href="#">RDC</a>	2.0+	<a href="#">svn</a>

A list of the original retired taglibs follows:

Name	JSP version	Obtain
<a href="#">Mailer 2</a>	2.0+	<a href="#">svn</a>
<a href="#">Cache</a>	1.2+	<a href="#">svn</a>
<a href="#">Data Grid</a>	1.2+	<a href="#">svn</a>
<a href="#">Application</a>	1.1+	<a href="#">svn</a>
<a href="#">Benchmark</a>	1.1+	<a href="#">svn</a>
<a href="#">BSF</a>	1.1+	<a href="#">svn</a>

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- [AxiKit](#)
- [Axis Sandesha2/C](#)
- [Axis Savan/C](#)
- [Axis Savan/Java](#)
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- [DeviceMap](#)
- [DirectMemory](#)
- [ESME](#)
- [Etch](#)
- [Excalibur](#)
- [Falcon](#)
- [Forrest](#)
- [Hama](#)
- [Harmony](#)
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- [Jakarta](#)
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- [Jakarta ECS](#)
- [Jakarta ORO](#)
- [Jakarta Regexp](#)
- [Jakarta Slide](#)
- [Jakarta Taglibs](#)
- [Lenya](#)
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- [MRUnit](#)
- [ODE](#)
- [ObjectRelationalBridge \(OBJB\)](#)
- [Oltu](#)

# JSTL 라이브러리 다운로드 과정



http://archive.apache.org/dist/jakarta/taglibs/

Index of /dist/jakarta/taglibs

Name	Last modified	Size	Description
<a href="#">Parent Directory</a>		-	
<a href="#">application/</a>	2011-10-17 14:57	-	
<a href="#">benchmark/</a>	2011-10-17 14:57	-	
<a href="#">bsf/</a>	2003-02-03 04:27	-	
<a href="#">cache/</a>	2003-02-03 04:28	-	
<a href="#">datetime/</a>	2011-10-17 14:57	-	
<a href="#">dbtags/</a>	2011-10-17 14:57	-	
<a href="#">doc/</a>	2003-02-16 09:56	-	
<a href="#">i18n/</a>	2003-02-03 04:28	-	
<a href="#">input/</a>	2003-02-16 09:56	-	
<a href="#">io/</a>	2003-02-03 04:28	-	
<a href="#">jnstags/</a>	2003-02-03 04:28	-	
<a href="#">jndi/</a>	2003-02-03 04:28	-	
<a href="#">log/</a>	2011-10-17 14:57	-	
<a href="#">mailer/</a>	2011-10-17 14:57	-	
<a href="#">page/</a>	2011-10-17 14:57	-	
<a href="#">random/</a>	2011-10-17 14:57	-	
<a href="#">rdc/</a>	2005-07-22 15:15	-	
<a href="#">regexp/</a>	2011-10-17 14:57	-	
<a href="#">request/</a>	2011-10-17 14:57	-	
<a href="#">response/</a>	2011-10-17 14:57	-	
<a href="#">scrape/</a>	2003-02-03 04:29	-	
<a href="#">session/</a>	2011-10-17 14:57	-	
<a href="#">standard-1.0/</a>	2011-10-17 14:57	-	
<a href="#">standard/</a>	2011-10-17 14:57	-	
<a href="#">string/</a>	2011-10-17 14:57	-	
<a href="#">ultradev4/</a>	2003-02-03 04:29	-	
<a href="#">utility/</a>	2003-02-03 04:29	-	
<a href="#">xsl/</a>	2011-10-17 14:57	-	



# JSTL 라이브러리 다운로드 과정



**Index of /dist/jakarta/taglibs/standard**

Name	Last modified	Size	Description
<a href="#">Parent Directory</a>	-	-	-
<a href="#">binaries/</a>	2005-10-05 20:39	-	-
<a href="#">source/</a>	2005-10-05 20:38	-	-

## Standard Taglib

### 1.1.x Releases

This directory contains releases for the 1.1.x versions of the **Standard Tag Library**, Jakarta Taglibs's open-source implementation of the **JSP Standard Tag Library (JSTL)**, **version 1.1**. JSTL is a standard under the Java Community Process. Standard-1.1.x requires a JSP 2.0 container, while Standard-1.0.x requires a JSP 1.2 container. For more information about JSTL, see [Sun's JSTL page](#).

Thank you for your interest in the JSP Standard Tag Library.

### Files

The 1.1 releases for the Standard Taglib are named jakarta-taglibs-standard, followed by both .tar.gz and .zip.

**Note:** The tar files in the distribution use GNU tar extensions and must be untarred with a GNU compatible version of tar.

### Support

If you have questions about the Standard Taglib, or the JSTL standard it implements, you are encouraged to join the taglibs-user@jakarta.apache.org mailing list. If you are interested in joining, online [instructions](#) are available.

### PGP Signatures

The tar.gz and zip files have been digitally signed (using a PGP-compatible program). Signatures show up in files ending in .asc that accompany tar.gz and zip files. The PGP keys can be found in the distribution directory at <http://www.apache.org/dist/jakarta/taglibs/KEYS>.

If you are concerned about security, always test the signatures. For example:

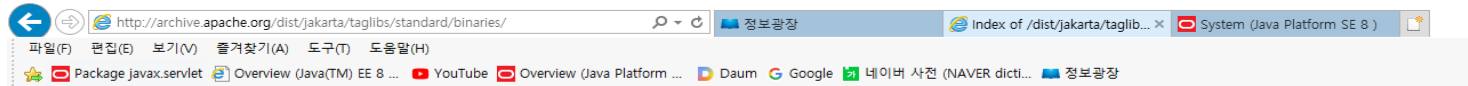
```
> pgpk -a KEYS
> pgpv jakarta-taglibs-standard-1.0.tar.gz.asc

-OR-

> pgp -ka KEYS
> pgp jakarta-taglibs-standard-1.0.tar.gz.asc

-OR-
```

# 아래 파일중 1.1.2.zip 을 받을것

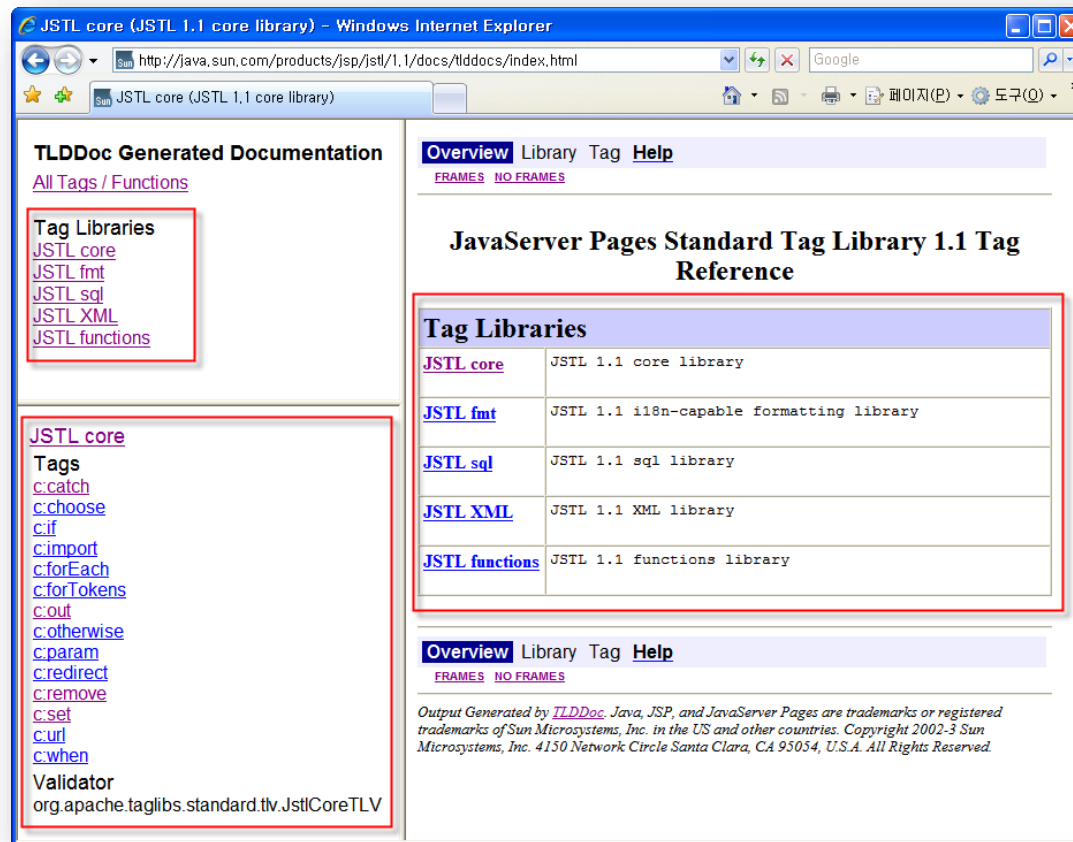


## Index of /dist/jakarta/taglibs/standard/binaries

Name	Last modified	Size	Description
<a href="#">Parent Directory</a>		-	
<a href="#">jakarta-taglibs-standard-1.0.1.tar.gz</a>	2002-07-27 22:38	5.0M	
<a href="#">jakarta-taglibs-standard-1.0.1.tar.gz.asc</a>	2002-07-27 22:38	232	
<a href="#">jakarta-taglibs-standard-1.0.1.zip</a>	2002-07-27 22:46	5.0M	
<a href="#">jakarta-taglibs-standard-1.0.1.zip.asc</a>	2002-07-27 22:46	232	
<a href="#">jakarta-taglibs-standard-1.0.2.tar.gz</a>	2002-10-14 01:30	2.4M	
<a href="#">jakarta-taglibs-standard-1.0.2.tar.gz.asc</a>	2002-10-14 01:30	232	
<a href="#">jakarta-taglibs-standard-1.0.2.zip</a>	2002-10-14 01:33	2.4M	
<a href="#">jakarta-taglibs-standard-1.0.2.zip.asc</a>	2002-10-14 01:33	232	
<a href="#">jakarta-taglibs-standard-1.0.3.tar.gz</a>	2003-02-19 22:16	5.0M	
<a href="#">jakarta-taglibs-standard-1.0.3.tar.gz.asc</a>	2003-02-19 22:16	232	
<a href="#">jakarta-taglibs-standard-1.0.3.zip</a>	2003-02-19 22:23	5.0M	
<a href="#">jakarta-taglibs-standard-1.0.3.zip.asc</a>	2003-02-19 22:23	232	
<a href="#">jakarta-taglibs-standard-1.0.tar.gz</a>	2002-06-21 22:49	4.9M	
<a href="#">jakarta-taglibs-standard-1.0.tar.gz.asc</a>	2002-06-21 22:49	232	
<a href="#">jakarta-taglibs-standard-1.0.zip</a>	2002-06-21 22:58	5.0M	
<a href="#">jakarta-taglibs-standard-1.0.zip.asc</a>	2002-06-21 22:58	232	
<a href="#">jakarta-taglibs-standard-1.1.0-B1.tar.gz</a>	2003-09-24 00:09	2.7M	
<a href="#">jakarta-taglibs-standard-1.1.0-B1.tar.gz.asc</a>	2003-09-24 00:09	304	
<a href="#">jakarta-taglibs-standard-1.1.0-B1.zip</a>	2003-09-24 00:09	2.7M	
<a href="#">jakarta-taglibs-standard-1.1.0-B1.zip.asc</a>	2003-09-24 00:09	304	
<a href="#">jakarta-taglibs-standard-1.1.0.tar.gz</a>	2004-01-28 20:11	2.7M	
<a href="#">jakarta-taglibs-standard-1.1.0.tar.gz.asc</a>	2004-01-28 20:11	304	
<a href="#">jakarta-taglibs-standard-1.1.0.zip</a>	2004-01-28 20:11	2.8M	
<a href="#">jakarta-taglibs-standard-1.1.0.zip.asc</a>	2004-01-28 20:11	304	
<a href="#">jakarta-taglibs-standard-1.1.1.tar.gz</a>	2004-07-19 21:53	872K	
<a href="#">jakarta-taglibs-standard-1.1.1.tar.gz.asc</a>	2004-07-19 21:53	186	
<a href="#">jakarta-taglibs-standard-1.1.1.zip</a>	2004-07-19 21:53	931K	
<a href="#">jakarta-taglibs-standard-1.1.1.zip.asc</a>	2004-07-19 21:53	186	
<a href="http://archive.apache.org/dist/jakarta/taglibs/standard/">http://archive.apache.org/dist/jakarta/taglibs/standard/</a>	..	..	..

# JSTL 참조 홈페이지 - 유효함

❖ <http://java.sun.com/products/jsp/jstl/1.1/docs/tlddocs/index.html>





## ❖ 지시자

- `<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>`

## ❖ 예제

```
<%@ page language="java" contentType="text/html; charset=EUC-KR"
    pageEncoding="EUC-KR"%>

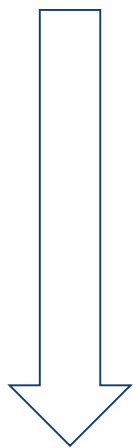
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=EUC-KR">
<title>JSTL 첫 예제</title>
</head>
<body>

    <%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
    <c:out value="Hello JSTL!!!" />

</body>
</html>
```



<prefix:tagname attribute1="" attribute2="" ..... />



참고 예시: prefix “c” 와 tagname “out” 인 경우

```
<c:out value="<hr>" />
```

```
<c:out value="<hr>" escapeXml="false" />
```

```
<c:out value="${param.name}">
```

패러미터가 없습니다.

```
</c:out>
```

```
<c:out value="${param.name}" default="패러미터 없음." />
```

# 코어 태그 라이브러리



분류	태그	기능
변수 지원	<a href="#">remove</a>	이미 설정한 변수를 삭제
	<a href="#">set</a>	범위에서 사용될 변수를 지정
제어 흐름	<a href="#">choose</a>	태그 <when>과 <otherwise>로 구성되어 있는 여러 개의 조건 중에 하나만 선정하여 처리
	<a href="#">when</a>	<choose> 태그의 서브태그로 조건이 <b>true</b> 이면 몸체를 실행
	<a href="#">otherwise</a>	<choose> 태그의 서브태그로 이전에 있는 태그 <when>에서 조건이 모두 <b>false</b> 이면 태그 <otherwise> 몸체를 실행
	<a href="#">forEach</a>	다양한 컬렉션 유형에서 반복을 처리
	<a href="#">forTokens</a>	문자열을 구분자(delimiters)로 구분하여 토큰으로 나누며 반복 실행
	<a href="#">if</a>	조건이 <b>true</b> 이면 몸체를 실행
URL 관리	<a href="#">import</a>	다른 페이지를 현재 위치, 또는 변수 또는 읽기객체에 저장
	<a href="#">param</a>	태그 <import>, <redirect>, <url>의 서브태그로, 매개변수 전송 처리
	<a href="#">redirect</a>	새로운 URL로 이동 처리
	<a href="#">url</a>	질의 매개변수를 이용하여 URL을 생성
예외처리, 출력	<a href="#">catch</a>	예외 처리
	<a href="#">out</a>	출력 처리

# set, remove, if, choose



## ❖ 변수 지원 태그 set, remove

- `<c:set var="변수이름" value="저장할 값" scope="4개의중의하나"/>`
- `<c:remove var="삭제할변수이름" scope="삭제할변수의scope"/>`

## ❖ 제어흐름 태그

- `<c:if test="${today.hours > 17 }" var="bool">`
- body
- `</c:if>`

예제 13-5 if.jsp  
(교재 445쪽)

- `<c:choose>`
- `<c:when test="${today.hours < 12 }" >`
- Body1
- `</c:when>`
- `<c:when test="${today.hours < 18 }" >`
- Body2
- `</c:when>`
- `<c:otherwise>`
- Body3
- `</c:otherwise>`
- `</c:choose>`

예제 13-6 choose.jsp  
(교재 445쪽)



주의

<c:set var= .....>

Scope별로 변수를  
정하여 값을  
할당해 두는 경우

예제 13-2 setvar.jsp  
(교재 438쪽)

<c:set target= .....>

Map 또는 자바빈즈 객체에  
<키, 값> 또는 <property,  
value> 쌍을 할당해 두는 경우  
(Scope별 지정 안 됨)

예제 13-3 settarget.jsp  
(교재 440쪽)





Scope 지정이 되어 있는 경우와 그렇지 않은 경우의 행동 방식 다름!

- 속성 var은 반드시 있어야 함
- 지정된 scope에 var에서 지정한 변수가 있으면 그것을 삭제
- 지정된 scope에 var에서 지정한 변수가 없으면 지우지 못함
- 아예 Scope 지정이 되어 있지 않은 경우는 4가지 scope를 모두 뒤짐

예제 13-4 remove.jsp  
(교재 443쪽)



## ❖ 태그 forEach

주의

몸체 있는 태그를 사용함!

- 배열, Collection, Map에 저장된 원소를 순차적으로 처리하거나 지정하는 횟수만큼 반복을 처리하는 태그

```
<c:forEach var="한원소를저장하는변수" items="배열또는Map등의집합체" >
    body
</c:forEach>
```

```
<c:forEach var="i" begin="3" end="100" step="3">
    body
</c:forEach>
```

```
<c:set var="score" value="<%= new int[] {95, 88, 77, 45, 99} %>" />
<c:forEach var="point" items="${score}" >
    \${point} = ${point} <br>
    <c:set var="sum" value="${sum + point}" />
</c:forEach>
```

예제 13-7 foreach.jsp  
(교재 451쪽)

# SQL 태그 라이브러리



분류	태그	태그	기능
리소스 지정	setDataSource	<sql:setDataSource ...>	데이터소스 지정
질의	<a href="#">query</a>	<sql:query ...>	조회 관련 SQL 문장 실행
	dateParam	<sql:dateParam ...>	날짜 형태로 SQL의 매개변수 값 지정
	param	<sql:param ...>	SQL의 매개변수 값 지정
	<a href="#">Update</a>	<sql:update ...>	수정 관련 SQL 문장 실행
	dateParam	<sql:dateParam ...>	날짜 형태로 SQL의 매개변수 값 지정
	param	<sql:param ...>	SQL의 매개변수 값 지정
	transaction	<sql:transaction ...>	트랜잭션 처리



주의

server.xml 파일에 리소스 등록하는 것 잊지 말것!

- 그밖에 <sql:query>, <sql:update>, <sql:transaction> 등의 태그 라이브러리 내의 처리동작은 자바코드 내의 소스 형식과 상이함!

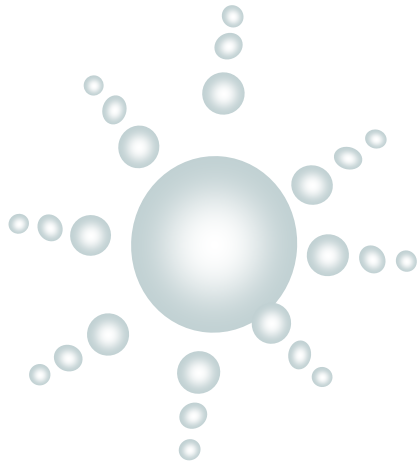
예제 13-15 query.jsp  
(교재 471쪽)



## `${fn:functionName()}`

- 대부분 문자열 처리 관련 함수들임.
- 단, `length()`는 인자로 문자열뿐 아니라 일반 컬렉션객체 사용 가능

예제 13-17 function.jsp  
(교재 478쪽 )



**Thank You !**  
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